Rodrigues, D. L., Lopes, D., Alexopoulos, T., & Goldenberg, L. (2017). A new look at online attraction: Unilateral initial attraction and the pivotal role of perceived similarity. *Computers in Human Behavior, 74*, 16-25. doi:10.1016/j.chb.2017.04.009

A new look at online attraction: Unilateral initial attraction and the pivotal role of perceived similarity

Although perceived attractiveness has consistently been shown to influence interpersonal attraction, perceiving another person as more similar to oneself is also highly important for attraction. We examine how both perceptions impact unilateral initial attraction (UIA), defined as a positive reaction following the perception of an unknown target within minimal information settings. In three studies, we examine this phenomenon in a social networking site scenario, by asking participants to imagine they were browsing such a site. In Study 1, participants reported greater UIA for an attractive target, and this effect was partially mediated by perceived similarity. In Study 2, participants reported greater UIA for a target neutral in attractiveness, after being conceptually primed with similarity. This effect was mediated by perceived attractiveness. In Study 3, both perceived similarity and perceived attractiveness were associated with increases in UIA, which in turn was associated with greater interest to interact with a target neutral in attractiveness. These novel findings show the importance of perceived similarity for UIA and the importance of this phenomenon for online interactions. We conclude by discussing general implications for online social activities, specifically relationship development.

Keywords: unilateral initial attraction (UIA); perceived similarity; perceived attractiveness

A new look at online attraction: Unilateral initial attraction and the pivotal role of perceived similarity

How do relationships begin? Interpersonal attraction is the first essential ingredient for relationship initiation (Berscheid & Regan, 2005; Berscheid & Reis, 1998; Finkel & Eastwick, 2015; Graziano & Bruce, 2008). Interpersonal attraction is commonly defined as a positive attitude, a pleasant affective reaction, or a positive action predisposition towards another person (e.g., Montoya & Horton, 2004). In this sense, it can range from mere empathy, to more strong feelings of attraction to another's appearance. Regardless of their intensity, voluntary relationships are initiated when one individual is attracted and interested in interacting with another person. This can occur after simply spotting another person, be it for example in a crowded airport or in a busy street (see Bredow, Cate, & Huston, 2008). In previous research this phenomenon was coined *unilateral initial attraction* (UIA; Rodrigues & Lopes, 2014) and emerges when the individual (the perceiver) feels unilaterally attracted to another person (the target), in a context where there is a minimal amount of information available about the target.

Social networking sites and mobile applications provide one of the most relevant contexts to examine the UIA phenomenon for four main reasons: (1) social platforms are nowadays popular resources used for the initiation of different types of interpersonal relationships, (2) social platforms facilitate the communication between individuals that would not have the possibility to meet otherwise, (3) social platforms typically provide minimal information about users, and (4) these computer-mediated interactions are often initiated after a quick glance at user profile photos (Ellison, Steinfield, & Lampe, 2007; Finkel, Eastwick, Karney, Reis, & Sprecher, 2012; Ramirez, Sumner, Fleuriet, & Cole, 2015; Ranzini & Lutz, 2016).

Past research has already established the effect of perceived facial attractiveness on interpersonal attraction in both face-to-face (e.g., Luo & Zhang, 2009) and online settings (e.g., Chappetta & Barth, 2016). However, there are other variables that greatly influence interpersonal attraction. For instance, there is considerable empirical evidence showing that perceived similarity influences attraction (e.g., Condon & Crano, 1988; Hoyle, 1993; Tidwell, Eastwick and Finkel, 2013). Indeed, Hoyle (1993) showed that participants reported higher levels of attraction in a condition where attitudinal similarity towards a target was manipulated, when compared to a condition of attitudinal dissimilarity. Notably, no differences in attraction were found between the similarity condition and a control condition, where no information about the target was conveyed. Also, in a speed-dating event Tidwell and colleagues (2013) found that perceiving another person as more similar to oneself across different personal characteristics (e.g., assertivity, trustworthiness) predicted interpersonal attraction, over and above perceived target attractiveness. The finding that individuals perceive greater similarity with others in the absence of objective information shows the importance of such perception for attraction (see also Condon & Crano, 1988).

Because users in social platforms often share minimal information, perceiving another person as more similar to oneself can also increase UIA and possibly promote interest in wanting to interact with another person. Therefore, in this paper we argue that perceived similarity impacts perceived attractiveness, and is one of the mechanisms that accounts for the UIA phenomenon. We tested this premise along two experimental and one cross-sectional studies. In Study 1, we manipulated the facial attractiveness of the target and examined whether perceived similarity mediated its impact on UIA. To specifically test the role of perceived similarity on the UIA phenomenon, in Study 2 we manipulated perceived similarity and tested whether this effect was independent of perceived attractiveness. In Study 3, we

measured perceived similarity and perceived attractiveness and asked participants to report their UIA and to indicate if they wanted to interact with a target person.

1. Unilateral Initial Attraction

Most of previous research focused on initial attraction elicited after a brief interaction, be it in a chat room provided by online dating services, or in speed-dating events (Finkel et al., 2012; Janz, Pepping, & Halford, 2015; Tidwell et al., 2013). However, a voluntary interaction usually only occurs after a positive reaction when first noticing another person (Cunningham & Barbee, 2008; Levinger & Snoek, 1972; Sprecher & Felmlee, 2008). This positive reaction reflects an interest to know more about and to interact with another person and therefore involves unilateral initial attraction (Rodrigues & Lopes, 2014). Being independent of mutual awareness, UIA facilitates the approach of another person and eventually the initiation and development of an interpersonal relationship (Afifi & Lucas, 2008). Indeed, this first unilateral stage is deemed crucial for different theoretical models of relationship formation (Bredow et al., 2008), and sexual desire (Birnbaum & Finkel, 2015).

The UIA phenomenon may lie "in the eye of the beholder", during which the perceiver picks several cues such as clothing (e.g., dress, shirt) or observed behavior (e.g., nonverbal behavior). Nonetheless, one of the most important features in this process is facial attractiveness, because it conveys critical information from which central person attributes are inferred (Ambady, Bernieri, & Richeson, 2000; Eagly, Ashmore, Makhijani, & Longo, 1991; Rule & Ambady, 2010; Todorov, Said, Engell, & Oosterhof, 2008). The processing of attractiveness is fast and effortless (Olson & Marshuetz, 2005), meaning that it is extracted very early in the perception of a target.

More importantly, these inferences involve core social evaluative dimensions that are directly relevant to the attraction process (Oosterhof & Todorov, 2008). For instance, research has shown that after only a 100 ms exposure to the photo of an unknown other, judgments in

traits such as perceived attractiveness and likeability were highly correlated to judgments made without time pressure (Willis & Todorov, 2006). In contexts such as social platforms, profile photos are one of the central features of user profiles, and quick judgements over these photos are common (e.g., Chappetta & Barth, 2016). Accordingly, facial attractiveness should be a salient cue that drives UIA.

1.1 Facial Attractiveness as a Trigger of UIA

Facial attractiveness is one of the most powerful predictors of interpersonal attraction (Berry, 2000; Finkel & Eastwick, 2015) and attractive others are considered more socially desirable and possess a greater probability to be selected as future partners (Darbyshire, Kirk, Wall, & Kaye, 2016; Lee, Loewenstein, Ariely, Hong, & Young, 2008; Lemay, Clark, & Greenberg, 2010; Montoya, 2008, 2014). For instance, an analysis of the "missed connections" posts on Craigslist showed that descriptions related to attractiveness (e.g., "You are so beautiful") were the most frequently cited when looking for a person met briefly face-to-face (Bevan, Galvan, Villasenor, & Henkin, 2016).

Unsurprisingly then, facial attractiveness represents an important cue in social platforms (Eastwick, Eagly, Finkel, & Johnson, 2011; Eastwick & Finkel, 2008). Indeed, greater facial attractiveness promotes more positive first impressions (Brand, Bonatsos, D'Orazio, & DeShong, 2012; Darbyshire et al., 2016), generates greater interest for the online profile (Chappetta & Barth, 2016), and may signal romantic interest in others (Van Ouytsel, Van Gool, Walrave, Ponnet, & Peeters, 2016).

However, there is also evidence that initial attraction can be influenced by other individual and contextual variables. For instance, research shows that dispositional mindfulness can predict initial attraction in a speed-dating context, regardless of facial attractiveness (Janz et al., 2015). The type of information shared in user profiles is an example of these context variables. Individuals are attracted to people who actually share similar

attitudes and interests (Berscheid & Reis, 1998; Montoya & Horton, 2013), and actively look for similar others as potential romantic partners (Arrindell & Luteijn, 2000), including in social platforms (Fiore & Donath, 2005).

1.2 Perceived Similarity as a Trigger of UIA

In order to be truly functional and have important consequences for interaction initiation, UIA should be driven by a positive impression about the target, and an inclination that future interactions will be favorable. Such impressions can be influenced by the degree to which a person is perceived as similar (Klohnen & Luo, 2003; Montoya, Horton, & Kirchner, 2008), especially in terms of attitudinal similarity (Regan, Levin, Sprecher, Scott, & Cate, 2000). Research has extensively shown that perceiving another person as having more similar attitudes to oneself increases interpersonal attraction (Montoya et al., 2008). For instance, perceived – and not actual – similarity predicts initial attraction in a speed-dating context (Eastwick et al., 2011; Tidwell et al., 2013), relationship well-being (Klohnen & Mendelsohn, 1998; Sprecher, 2013), and online friendships (Antheunis, Valkenburg, & Peter, 2012). Because individuals often decide to interact online with another person based on limited interpersonal information available at user profiles, perceived similarity can act as a signal of unilateral interest in another person, and by increasing UIA, perceived similarity might also be determinant for relationship initiation.

It is highly likely that UIA is partially based on targets' perceived similarity because this is one of the target features (alongside perceived attractiveness) that is acquired early on in person perception (e.g., Tidwell et al., 2013). But how do people manage to infer similarity with someone they have not yet met, and for whom only minimal objective information is available? Recent research shows that individuals are able to decide whether another person possesses traits or features that are important to them (Rule & Ambady, 2010; Todorov, 2012). The lack of knowledge regarding who actually is the other person urges the individual

to use proximal cues in order to make judgments about distal, unobserved properties (Brunswik, 1957). Facing this uncertain situation, the individual relies on perceived similarity (e.g., attitudinal similarity), which represents a proximal cue to the judgment at hand (Klohnen & Mendelsohn, 1998).

Indeed, individuals assume that an unknown other is more similar to them in the absence of objective or contradictory information (Hoyle, 1993). This process possibly serves an uncertainty reduction function in the situation (Ambady et al., 2000; Knobloch & Miller, 2008; Murphy et al., 2015; Sunnafrank & Ramirez, 2004). For instance, Antheunis, Valkenburg and Peter (2010) have shown that greater perceived similarity with another user in online initial interaction increases social attraction, independently of which uncertainty reduction strategies are actively undertaken. This direct path was partially mediated by the perception of less uncertainty about that user. According to the authors, when individuals perceive another person as more similar to them, they are able to draw inferences about that person based on their own knowledge, which in turn increases their sense of knowing and reduces their uncertainty about that person. In their analyses, however, the authors did not examine the role of facial attractiveness in the process.

We argue that the typical inferences based on facial attractiveness might serve as cues through which perceived similarity is achieved, given the positive link between facial attractiveness and perceived similarity (e.g., Buunk & Bosman, 1986). In one study, Miyake and Zuckerman (1993) asked participants to watch a videotaped interaction between two targets and to subsequently make a series of interpersonal judgments. The authors found that participants formed more positive impressions of the targets perceived as more (vs. less) attractive, while also perceiving them as more similar to themselves. More generally, the link between attractiveness and perceived similarity can be accounted for by favorable self-perceptions and implicit egotism, that is, the spontaneous positive feelings about the self

(Horton, 2003). Thus, it is not only attractiveness *per se* which drives attraction, but also the fact that attractive targets are perceived as more similar to the self, because people have predominantly positive self-views and tend to think that attractive others resemble them.

1.3 Summary

Besides the well-established role of facial attractiveness in providing objective cues when forming a first impression, in the present article we hypothesize and analyze the claim that the perception of similarity can also be a proximal cue that helps individuals form attraction judgments, especially in online contexts. In this sense, the perception of greater similarity with another person could help motivate a voluntary first interaction, making it the first stage of relationship initiation. We present two experimental and one cross-sectional studies testing the specific hypothesis that perceived similarity and perceived attractiveness are catalysts of the UIA phenomenon.

Following a brunswikian probabilistic view, in the absence of objective interpersonal information, individuals should report greater UIA and be interested in interacting with another person based on perceptions of greater similarity and attractiveness, which in turn should facilitate the initiation of an interpersonal relationship (see Figure 1).

-- insert figure 1 --

Figure 1. *A theoretical model of the Unilateral Initial Attraction (UIA) phenomenon.*

All studies were conducted using a social networking site scenario to make our findings relevant to online interaction settings. In Study 1 we experimentally manipulated the target's facial attractiveness and tested the basic premise that facial attractiveness increases UIA. To test our specific hypothesis, we further examined if this effect was mediated by perceived similarity. To establish a causal association between perceived similarity and UIA, in Study 2, we manipulated similarity. Because past research has established the importance of facial attractiveness for attraction, we further examined the mediating role of perceived

attractiveness on UIA. Taking our argument a step further, in Study 3 we examined the predictive power of UIA in wanting to interact with another person, and tested whether UIA was associated with greater perceived similarity and perceived attractiveness.

2. Study 1

Interpersonal attraction is influenced by the facial attractiveness of the target in situations where little information about the target is conveyed (e.g., Chappetta & Barth, 2016). One such context relates directly to the experiences individuals have when browsing online social platforms. Individuals are faced with photos of several unknown users often displayed at the same time and use cues to make quick judgments on which profiles to visit and these immediate decisions are based on positive reactions to others.

In this experimental study, we asked individuals to imagine that they were browsing on a social networking site and they saw the photo of a target. Studies examining the effects of physical attractiveness on judgments often rely on pre-tests of perceived attractiveness, such that more physically attractive targets are those who receive higher ratings in an attractiveness scale, those who do not differentiate from the response scale midpoint are categorized as neutral, and less physically attractive target are those who receive lower ratings (e.g., Eastwick et al., 2011). We followed a similar procedure to select an attractive and a neutral target.

As unilateral initial attraction results in a quick judgment of interest (Rodrigues & Lopes, 2014), we expected a main effect of the experimental condition (H1), such that individuals faced with an attractive target should report greater initial attraction, when compared to those faced with a neutral target. Given that the photo is not associated with objective information, we further expect this effect to be mediated by the perception of the target as having more similar attitudes to oneself (H2), such that individuals faced with an

attractive target should perceive greater similarity, thus leading to greater initial attraction. This mediation should be independent of the effect of perceived attractiveness (H3).

2.1 Method

2.1.1 Participants and Design

Participants were 94 Portuguese Caucasian undergraduates (88 women; M_{age} = 20.46, *SD* = 2.26) that voluntarily took part in an online study. Individuals identified themselves as heterosexuals (92.6%), bisexuals (5.3%) or homosexuals (2.1%). All participants were single and not dating another person.

Participants were randomly assigned to one of the two conditions defining the experimental design: 2 (target: neutral vs. attractive).

2.1.2 Procedure and Measures

This study was in agreement with the Ethics Guidelines issued by the Scientific Commission of the hosting institution. The study involved healthy adult volunteers, was noninvasive and responses were non-forced, results were analyzed anonymously, and participants were not paid nor given other incentives to participate.

Undergraduates were invited to participate in a study about personal relationships. To do so, we posted an announcement in public groups of Portuguese students in social network sites (e.g., Facebook). The study was conducted in Qualtrics. When accessing the link provided in the post, individuals were informed that the general purpose of the study was to understand how people perceive online photos of other people. They were then presented with ethical considerations and informed that they could abandon the study without their responses being recorded for analysis. After providing informed consent (by clicking on the *I agree* option), participants started the questionnaire.

Participants were asked standard demographic and control questions (e.g., age, gender, sexual orientation, relationship status). Following this, participants were asked to imagine that

they were browsing a social network site and came across the photo of a target person. Participants were randomly presented with only one of two possible photos – one depicting a neutral or one depicting an attractive target. Because we were examining interpersonal attraction processes, the sex of the target shown to participants was dependent on the sexual orientation of the participants. More specifically, heterosexual and bisexual participants saw the photo of a cross-sex target, and homosexual participants saw the photo of a same-sex target. Both photos were grey-scale headshots with 3 x 4 inches displaying a neutral facial expression and had no jewelry, accessories, glasses, facial hair or make up. This procedure followed past research showing that photos depicting information related to physical appearance (e.g., clothing) influences judgments of targets in unexpected ways (e.g., Albright, Kenny, & Malloy, 1988). Targets were selected considering the typical age range of undergraduates (18-25 years old) and pre-tested in a sample of heterosexual undergraduates (N = 50, 29 women; M_{age} = 20.34, SD = 2.46). Perceived attractiveness of the attractive target (M = 6.88, SD = 2.15) was reliably above the scale midpoint (1 = *Unattractive,* 9 = *Attractive*), $t(24) = 4.38$, $p < .001$, $d = 1.79$. For the neutral target, perceived attractiveness judgments were not different from the scale midpoint (M = 4.84, SD = 2.06), $t < 1$.

The target was shown on screen for 5 seconds and was followed by the dependent measures. Participants were asked to: (a) rate the target in attractiveness (four items, α = .87; "I think this person is…", *1 = Ugly, 9 = Beautiful; 1 = Unpleasant, 9 = Pleasant; 1 = Displeasing, 9 = Pleasing;* 1 = *Unattractive,* 9 = *Attractive*), (b) indicate to what extent they perceive the target to be similar to them (three items; α = .90; "I think this person has…" "…ideas and thoughts similar to mine", "…attitudes similar to mine", and "…beliefs similar to mine", all 1 = *Not at all*, 9 = *A lot*), and (c) report their initial attraction (UIA scale comprising five items, α = .94; "If I came to know this person, I would…" "…be willing to be with him/her", "…be willing to laugh with him/her", "…feel joy", "… feel empathy", "…be

willing to know more about him/her", all 1 = *Not at all*, 9 = *A lot*; Rodrigues & Lopes, 2015). At the end, participants were thanked and provided with an email address to contact the research team should they want to obtain further information or clarify any question regarding the research. After a check on connection properties, there were no repeated internet protocol addresses.

2.3 Results and Discussion

2.3.1 Manipulation Check

Results showed that the attractive target was perceived as more attractive ($M = 6.74$, $SD = 1.61$) than the neutral target ($M = 4.71$, $SD = 1.49$), $t(92) = 6.35$, $p < .001$, $d = 1.32$. This shows the effectiveness of our manipulation.

2.3.2 Hypothesis Testing

Results of a *t*-test showed that participants presented with the attractive target reported greater initial attraction ($M = 6.00$, $SD = 2.22$) than those presented with the neutral target ($M = 4.00$, $SD = 1.53$), $t(92) = -5.10$, $p < .001$, $d = 1.06$.

To test our hypothesis that perceived similarity mediates the association between the attractiveness manipulation and initial attraction, we conducted a 5,000 samples bootstrapped mediation analysis (Model 4) using PROCESS (Hayes, 2013). Experimental condition (dummy coded: 0 = neutral and 1 = attractive) was the independent variable (X). Perceived similarity was the mediator (M) and initial attraction was the outcome variable (Y). All variables were centered prior to the analysis.

Results are depicted in Figure 2. Participants in the attractive experimental condition perceived the target as more similar to them, $R^2 = .06$, $p = .018$. The greater this perception was, the more initial attraction participants indicated for the target, $R^2 = .68$, $p < .001$. Although the direct effect of the experimental condition on UIA was significant after controlling for perceived similarity, $p < .001$, the indirect effect of perceived similarity was

also significant. This mediation remained significant after controlling for perceived attractiveness, gender and sexual orientation, all $p < .001$.

-- insert figure 2 --

Figure 2. *Unstandardized path coefficients for the mediation by perceived similarity on the effect of target attractiveness manipulation on UIA (Study 1).*

2.3.3. Discussion

The finding that perceived similarity partially mediated the effect after controlling for perceived attractiveness is not necessarily evidence of its independent effect on the UIA phenomenon. Although VIF values of the mediation analysis are within acceptable parameters (< 1.31), the strong correlation between perceived similarity and perceived attractiveness, $r(94) = .49$, $p < .001$, may have created a confound because the experimental manipulation was directly related with characteristics of the target. To test whether the effect of perceived similarity on UIA judgments is independent from perceived attraction, in Study 2 we experimentally manipulated similarity with a procedure unrelated to person perception.

3. Study 2

In this experimental study we asked individuals to complete a task in which they were spotting and writing down similarities or dissimilarities between two images depicting a landscape. This procedure is a non-intrusive methodology used in previous studies as a conceptual prime of similarity (Mussweiler & Damisch, 2008). If perceived similarity influences UIA judgments, then we expect a main effect of the experimental condition (H4), such that individuals primed with similarity should report greater UIA for a target neutral in attractiveness, than individuals primed with dissimilarity. Following the results from our previous study, we further expect this effect to be mediated by the perception of the target as more attractive (H5), independently of the effect of perceived similarity (H6).

3.1 Method

3.1.1 Participants and Design

Participants were 87 Portuguese Caucasian undergraduates (73 women; M_{age} = 19.14, *SD* = 2.10) that voluntarily took part in an online study. Individuals identified themselves as heterosexuals (93.1%), bisexuals (4.6%) or homosexuals (2.3%). All participants were single and not dating another person.

Participants were randomly assigned to one of the two conditions defining the experimental design: 2 (prime: dissimilarity vs. similarity).

3.1.2 Procedure and Measures

This study was in agreement with the Ethics Guidelines issued by the Scientific Commission of the hosting institution. The study involved healthy adult volunteers, was noninvasive and responses were non-forced, results were analyzed anonymously, and participants were not paid nor given other incentives to participate.

The procedure was similar to that of Study 1, with three differences. First, participants were presented with an unobtrusive task for a pilot study (which was actually our experimental manipulation) after the demographic questions. Specifically, participants were shown two images depicting a village square and asked to either spot and write down the differences between the images (dissimilarity prime) or spot and write down the similarities between the images (similarity prime; Mussweiler & Damisch, 2008). They were given 4 minutes to perform this task. After this, all participants were shown the photo of a neutral target (used in Study 1), and asked to report their perceived similarity (α = .89), perceived attractiveness (α = .76) and initial attraction (α = .92) (all measures from Study 1).

3.2 Results and Discussion

3.2.1 Manipulation Check

Results showed that participants primed with similarity perceived the target as more similar to them (*M* = 2.77, *SD* = 1.34), when compared to participants primed with

dissimilarity (M = 2.08, SD = 1.18), $t(80) = 2.56$, $p = .012$, $d = 0.57$. This shows the effectiveness of our manipulation.

3.2.2 Hypothesis Testing

Results of a t-test showed an effect of the experimental condition on UIA, $t(85) = -2.85$, $p = .006$, $d = 0.62$, such that participants in the similarity experimental condition reported greater initial attraction for the neutral target (M = 3.47, SD = 1.50) than those in the dissimilarity condition (M = 2.60, SD = 1.36).

To test the hypothesis that similarity influences initial attraction and that this effect is independent of perceived attractiveness, we conducted a 5,000 samples bootstrapped mediation analysis (Model 4) using PROCESS. Experimental condition (dummy coded: 0 = dissimilarity and 1 = similarity) was the independent variable (X). Perceived attractiveness (M) was the mediator and initial attraction was the outcome variable (Y). All variables were centered prior to the analysis.

Results are depicted in Figure 3. Individuals in the similarity experimental condition perceived the target as more attractive, $R^2 = .06$, $p = .027$. The greater this perception was, the more initial attraction participants indicated for the target, $R^2 = .41$, $p < .001$. The direct effect of the experimental condition on UIA after controlling for perceived attractiveness was non-significant, $p = .075$, but the indirect effect through perceived attractiveness was significant. This mediation remains significant after controlling for perceived similarity, gender and sexual orientation, all $p < .001$.

-- insert figure 3 --

Figure 3. *Unstandardized path coefficients for the mediation by perceived attractiveness on the effect of conceptual similarity manipulation on UIA (Study 2).*

3.2.3. Discussion

The fact that conceptual similarity mirrored the results of Study 1 is an important addition to the literature and further supports our hypothesis that the UIA phenomenon is not solely based on quick judgments of attractiveness, at least in contexts where no objective information about another person is presented. However, the finding of a partial mediation in Study 1, and a full mediation in Study 2, also suggests that attractiveness cues exert a stronger influence on UIA than perceived similarity. In Study 3, we tested this hypothesis and examined whether the predictive power of UIA on wanting to interact with the target is associated with perceived similarity and perceived attractiveness to the same extent. Because research has shown that individual differences in the attentiveness to others are associated with greater interest in wanting to meet them (Miller, 1997), in this study we further controlled for the impact of this variable in our analyses.

4. Study 3

In a cross-sectional online study, we asked individuals to look at the photo of a neutral target and make a series of judgments. Following the conceptualization of UIA (Rodrigues & Lopes, 2014, 2015), we expect UIA judgments to be associated with greater likelihood of wanting to interact with the target (H7). Converging with previous findings, UIA should be associated with perceived attractiveness and perceived similarity (H8), and UIA should mediate their association with wanting to interact with the target (H9). Based on the findings from Study 1, perceived attractiveness is also expected to have a direct association with wanting to interact with the target (H10).

4.1 Method

4.1.1 Participants

Participants were 263 Portuguese Caucasian undergraduates (165 women; M_{age} = 21.99, *SD* = 2.35) that voluntarily took part in an online study. Individuals identified themselves as

heterosexuals (89.2%), bisexuals (5.4%) or homosexuals (5.4%). All participants were single and not dating another person.

4.1.2 Procedure and Measures

This study was in agreement with the Ethics Guidelines issued by the Scientific Commission of the hosting institution. The study involved healthy adult volunteers, was noninvasive and responses were non-forced, results were analyzed anonymously, and participants were not paid nor given other incentives to participate.

The procedure was similar to that of Study 1, with four differences. First, all participants were shown the photo of the neutral target from Study 1. Second, the order of presentation of the dependent measures was perceived similarity (α = .92), perceived attractiveness (α = .83), and initial attraction (α = .95). Third, participants were additionally asked to indicate whether they would like to interact with the target (*No*/*Yes*). Fourth, as a control measure, participants were asked to indicate their attentiveness to other people (six items; α = .81; sample item: "I am distracted by other people that I find attractive", 1 = *Rarely*, 7 = *Frequently*; Miller, 1997).

4.2 Results and Discussion

4.2.1 Preliminary Analysis

Descriptive information of all measures and control variables are provided in Table 1. Results showed that all dependent variables were positively correlated, all $p < .001$. There were also significant correlations between the dependent and control variables. For instance, initial attraction was positively correlated with gender [coded: 0 = female and 1 = male], p = .027, sexual orientation [coded: 0 = heterosexual, 1 = bisexual, and 2 = homosexual], p = .004, and attentiveness to others, p = .003. A similar pattern of correlations was found for perceived similarity, all $p < .013$, and for wanting to interact with the target [coded: 0 = no

and 1 = yes], all $p < .050$. Perceived attractiveness was only positively correlated with sexual orientation, $p = .016$.

Table 1

Descriptive Information and Correlations Between the Variables (Study 3)

		Correlations		
	M (*SD*)	1	2	3
1. Perceived similarity	1.74 (1.06)	-	-	-
2. Perceived attractiveness	3.80 (1.11)	.33***	-	
3. Initial attraction	2.68 (1.45)	.62***	.52***	-
4. Attentiveness to others	3.80 (1.39)	.23***	.17**	.23***

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

4.2.2 Hypothesis Testing

Results showed that 44.1% of our sample indicated they wanted to interact with the target. To examine our hypothesis we computed a structural equation model using Mplus 7 (Muthén & Muthén, 2015), with Maximum Likelihood Robust estimation (MLR) that corrects for potential bias in multivariate distribution assumptions (Yuan & Bentler, 2000).

Based on the standards established in the literature (Bentler, 1990; Jöreskog & Sörbom, 1984), the model presented a good fit, $\chi^2(59) = 130.18$, $p < .001$, Comparative Fit Index = .97, Tucker-Lewis Index = .96, Root Mean Square Error of Approximation = .07 [.05, .08] and Standardized Root Mean Square Residual = .04. Results are depicted in Figure 4.

Standardized results showed that UIA was associated with both perceived similarity, $p < .001$, and perceived attractiveness, $p < .001$. In turn, UIA was predictive of wanting to interact with the target, $p < .001$. Specifically examining direct effects in our model, results showed that wanting to interact was only predicted by perceived attractiveness, $p = .001$, but not by perceived similarity, $p = .131$. Importantly, wanting to interact was indirectly associated with both perceived similarity and perceived attractiveness, via increased UIA, both $p < .001$.

Furthermore, wanting to interact with the target was not significantly predicted by attentiveness to others, $p = .064$, gender, $p = .775$, or sexual orientation, $p = .415$. Furthermore, results remain the same when controlling for these variables.

-- insert figure 4 --

Notes: Only latent variables are depicted. Measurement models presented significant results in all the models tested: perceived similarity $\lambda > .80$, perceived attractiveness $\lambda > .44$, and UIA $\lambda > .83$, all $p < .001$.

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

Figure 4. *Structural equation model showing UIA to predict wanting to interact with the target, influenced by perceived similarity and perceived attractiveness (Study 3).*

4.2.3. Discussion

This study shows that both perceptions of similarity and attractiveness influence wanting to interact with the target by increasing UIA. Importantly, these findings were independent of attentiveness to others, meaning that individual differences in this variable do not account for the UIA phenomenon.

5. General Discussion

Research has extensively shown that the facial attractiveness of another person determines interpersonal attraction, not only after brief face-to-face interactions (Luo & Zhang, 2009), but also when individuals are examining online dating profiles (Chappetta &

Barth, 2016). In both cases, individuals have readily available objective information that can be used to form judgments about the other person (e.g., what the other person is looking for in a partner), which will influence interpersonal attraction. However, attraction occurs after simply noticing another person without any objective interpersonal information. This UIA phenomenon constitutes the first necessary step for individuals to become interested in wanting to interact and know other people, and possibly initiate a voluntary interpersonal relationship (e.g., Bredow et al., 2008; Rodrigues & Lopes, 2014). Online social platforms are a relevant context on which to examine the UIA phenomenon, because users often share a limited amount of information about themselves (e.g., online dating services), or almost no interpersonal information (e.g., Tinder or Grinder applications). In these latter cases, decisions to interact with others are mostly based on super-quick glances at user profile photos.

Research has shown that facial attraction is associated with perceptions of similarity (Buunk & Bosman, 1986; Miyake & Zuckerman, 1993), that individuals assume greater similarity with others even in the absence of objective interpersonal information (Hoyle, 1993), and that perceived attraction predicts interpersonal attraction after brief interactions (Tidwell et al., 2013). Therefore, in this paper we argued that perceived similarity influences UIA alongside facial attractiveness, and that UIA predicts wanting to meet another person in an online setting. We conducted three studies to examine our hypotheses.

Study 1 showed that a more attractive target elicited greater UIA. More importantly, we showed that this effect was partially mediated by the perception of the target as more similar. Previous research suggests that attractiveness is a variable that conveys social information influencing person perception and determining the establishment of an interaction (e.g., Lee et al., 2008; Montoya, 2008). We extended the literature in important ways by showing that perceived similarity also influences early stages of the attraction process, namely when

individuals browse social networking sites, and that the UIA phenomenon goes beyond the mere evaluation of attractiveness.

In Study 2 we reversed these variables and showed for the first time that UIA was influenced by conceptually priming individuals with similarity. Note that in this study the manipulation of similarity was completely unrelated to person perception, and thus its effect on UIA is not accounted by attributing perceived similarity to the target. Rather, participants who were asked to write down the similarities between two images perceived a neutral target as more similar to themselves and as more attractive, when compared to individuals who were asked to spot the differences between the images. Again, we showed that perceived similarity can be determinant in early stages of the attraction process when browsing social networking sites. Converging with our argumentation, and further showing the important role of attractiveness for our phenomenon, perceived attractiveness fully mediated the impact of conceptual similarity on UIA.

In Study 3 we pushed our demonstration further by including an explicit measure of wanting to interact with another person in an online setting. We showed for the first time that when faced with the photo of a neutral target, and in the absence of interpersonal information, both the perceptions of greater similarity and greater attractiveness increase UIA. This replicated our experimental findings (Studies 1 and 2), this time using a cross-sectional design in which no experimental manipulation was undertaken. More importantly, we also showed for the first time that greater UIA increases the likelihood of wanting to interact with a stranger. These findings showed that both perceptions can be seen as the hallmark of the UIA phenomenon in a social networking site scenario. In the case of perceived attractiveness, there was also a direct association with wanting to interact with the target, further showing that such perceptions are important cues for attraction outcomes.

Taken together, our results suggest UIA to be based on simple cues readily available to the perceiver. As inferences occur rapidly and accurately without a great amount of objective information (Ambady et al., 2000; Murphy et al., 2015), the central role of perceived similarity to the UIA phenomenon may emerge by allowing perceivers to reduce the uncertainty associated with the target, helping them to form a judgment. The voluntary interpersonal approach is facilitated by the expectation of a positive interaction and reciprocity of interests (e.g., Berscheid & Reis, 1998; Montoya & Insko, 2008). Hence, our findings suggest that perceiving another person as more similar to themselves can help individuals to perceive the other person more positively, feel UIA and initiate an interaction, and eventually overcoming shyness and dismissing the idea of a possible rejection (for examples in online dating, see Blackhart, Fitzpatrick, & Williamson, 2014; Schaller & Murray, 2008). More broadly, our findings resonate with recent research by Kashian, Jang, Shin, Dai, and Walther (2017) showing an association between online self-disclosure and liking. If the perception of others as more attractive and more similar lead to greater UIA, it can also promote greater self-disclosure. In turn, greater self-disclosure can promote reciprocal attraction and increase trust, which has been associated with greater intention to use online dating services to look for potential romantic partners (Chan, 2017). Therefore, greater UIA in online platforms can broadly be associated with the development of different types of relationships, including romantic ones.

Interestingly, recent research suggests that perceiving similarity grows throughout the course of a romantic relationship (Sprecher, 2013) and elicits the sense of belonging to a given group (Easterbrook & Vignoles, 2013). It seems that the UIA phenomenon may have a larger repercussion, not only by facilitating the initiation of interpersonal relationships, but also belonging to social groups. More importantly, these findings may have an implication to online dating services. These websites typically use algorithms to match profiles solely based

on actual similarities, or on wide range of objective criteria (Finkel et al., 2012). However, our findings clearly showed that perceived similarity (i.e., a mental construct) is associated with UIA and helps promote interest in interacting with another person, and other researchers have shown that perceived similarity is associated with romantic relationship maintenance (Fletcher, Simpson, & Thomas, 2000). Hence, failing to account for this variable in online dating services may decrease matching efficiency and users' satisfaction. Although our theoretical model does not directly translate into algorithms that online dating services could implement, some of our findings might be of relevance. These services can match users based on actual similarity, but make more salient the reason why users were matched (or display the number of shared attributes). For instance, one user can be matched to another, and receive automatically a private message listing which (or how many) aspects were similar between them. Making this information more salient could boost perceived similarity, which in turn could influence a first approach to the other user (e.g., start an interaction by making a comment about the type of food both users prefer), and pave the way for subsequent interactions.

The fact that our research was based on a minimal interpersonal information setting is both a strength and a limitation. On the one hand, it clearly operationalizes the construct of UIA, but on the other hand, it lacks ecological validity when compared to most social platforms. Indeed, the decision to click on a photo or interact with a user is also influenced by personal motivations (e.g., browsing a website to spare time vs. browsing while actively looking to interact with another person) and by contextual factors (e.g., placement of the photo in the online profile, number of photos displayed). Nonetheless, this set of studies provides the first empirical evidence allowing to understand the UIA phenomenon in online settings, in which minimal interpersonal information is available. Still, future research should seek to extend this evidence to other online settings. For instance, researchers could

experimentally manipulate the type and amount of information associated with the user. Researchers could also experimentally manipulate different target attributes at the same time (e.g., a facially attractive person who hates music) and examine how congruent and incongruent information influences the UIA phenomenon. Researchers could also examine longitudinally in social networking and dating sites (e.g., Facebook; online dating services) whether UIA predicts the initiation of different types of relationships and the role of perceived similarity in their maintenance (for an example on deception in online dating, see Guadagno, Okdie, & Kruse, 2012). As illustrated in these examples, future research should seek to extend the UIA phenomenon to more ecologically valid settings (e.g., sites in which individuals decide to befriend micro celebrities who look attractive, based on readily available videos and social media pages), examine boundary conditions for the role of perceived similarity, and examine their predictive role in the initiation and maintenance of interpersonal relationships. More broadly, researchers could seek to extend the UIA phenomenon to other areas. For instance, health platforms that provide comparative feedback regarding a given health activity (e.g., jogging; e.g., Shin & Biocca, 2017) can increase perceived similarity and UIA between users and lead to joint activities (e.g., jogging together), which in turn can promote the development of an interpersonal relationship. Online gaming communities (e.g., Shin & Chung, 2017) can also consider our findings and develop strategies to increase sense of belonging between users, for instance by increasing perceived similarity based on the type of games users play more often. In an unrelated field, perceived similarity with users of a health informatics platform can lead to greater UIA and possibly promote greater intention to use such platforms (e.g., Shin, Lee, & Hwang, 2017).

Worth noticing, all results were independent of gender and sexual orientation across studies. Typical findings in the literature have shown that men are more sexually unrestricted (Schmitt, 2005) and more eager for sex than women (Peplau, 2003). However, these gender

differences are becoming less reported in the literature, especially in online settings (Rodrigues & Lopes, 2016; Rodrigues, Lopes, & Pereira, 2016a, 2016b). There is also evidence that gay men are more sexually unrestricted than lesbian women (Peplau & Fingerhut, 2007), and that gay men have greater variability in their mating strategies than heterosexual men (Howard & Perilloux, 2016). In Study 3, we also showed that our results were independent of the general attentiveness to others, a variable also associated with mating strategies (Miller, 1997). It is important to note that in our studies we asked participants to examine the photo of a target, without giving them specific mating goals. Also, in our conceptualization of the phenomenon, UIA is mostly related with interest in wanting to interact with another person, and not on the physiological reactions following the perception of that person (Rodrigues & Lopes, 2014, 2015). Converging with our results, perceived similarity is signaled as one of the most important attributes in romantic relationships and friendships by both genders (Sprecher, 1998). It is possible that making salient a sexual mating goal could result in sexual attraction, allowing for differences based on gender and sexual orientation to occur. Future research should examine this possibility, by extending our findings to other types of contexts and social platforms.

This research represents the first empirical demonstration of UIA as a unique phenomenon, distinct from other proximal constructs such as passionate love, that can emerge in online platforms. This strengthens the argument of UIA as the essential core for any type of interpersonal relationship and speaks to the importance in understanding the initiation and development of new interpersonal relationships. Moreover, it opens new avenues to analyze the process underlying the UIA phenomenon in greater detail in order to better understand why individuals approach each other, and possibly why some individuals form friendships, while others develop romantic relationships, or some choose to follow separate pathways after a first interaction, and yet others choose not to interact at all!

6. References

Afifi, W., & Lucas, A. (2008). Information seeking in the initial stages of relationship development. In S. Sprecher, A. Wenzel, & J. Harvey (Eds.), *Handbook of relationship initiation* (pp. 135–151). New York, NY: Psychology Press.

Albright, L., Kenny, D., & Malloy, T. (1988). Consensus in personality judgments at zero acquaintance. *Journal of Personality and Social Psychology*, *55*, 387–395. doi:10.1037/0022-3514.55.3.387

Ambady, N., Bernieri, F., & Richeson, J. (2000). Toward a histology of social behavior: Judgmental accuracy from thin slices of the behavioral stream. *Advances in Experimental Social Psychology*, *32*, 201–271. doi:10.1016/S0065-2601(00)80006-4

Antheunis, M., Valkenburg, P., & Peter, J. (2010). Getting acquainted through social network sites: Testing a model of online uncertainty reduction and social attraction. *Computers in Human Behavior*, *26*, 100–109. doi:10.1016/j.chb.2009.07.005

Antheunis, M., Valkenburg, P., & Peter, J. (2012). The quality of online, offline, and mixed-mode friendships among users of a social networking site. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, *6*. doi:10.5817/CP2012-3-6

Arrindell, W., & Luteijn, F. (2000). Similarity between intimate partners for personality traits as related to individual levels of satisfaction with life. *Personality and Individual Differences*, *28*, 629–637. doi:10.1016/S0191-8869(99)00125-7

Bentler, P. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*, 238–246. doi:10.1037/0033-2909.107.2.238

Berry, D. (2000). Attractiveness, attraction, and sexual selection: Evolutionary perspectives on the form and function of physical attractiveness, *32*, 273–342. doi:10.1016/S0065-2601(00)80007-6

Berscheid, E., & Regan, P. (2005). *The psychology of interpersonal relationships*. Mahwah, NJ: Prentice-Hall.

Berscheid, E., & Reis, H. (1998). Attraction and close relationships. In T. Gilbert, S. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., Vol. 2, pp. 193–281). New York, NY: McGraw-Hill.

Bevan, J., Galvan, J., Villasenor, J., & Henkin, J. (2016). "You've been on my mind ever since": A content analysis of expressions of interpersonal attraction in Craigslist.org's Missed Connections posts. *Computers in Human Behavior*, *54*, 18–24. doi:10.1016/j.chb.2015.07.050

Birnbaum, G., & Finkel, E. (2015). The magnetism that holds us together: sexuality and relationship maintenance across relationship development. *Current Opinion in Psychology*, *1*, 29–33. doi:10.1016/j.copsyc.2014.11.009

Blackhart, G., Fitzpatrick, J., & Williamson, J. (2014). Dispositional factors predicting use of online dating sites and behaviors related to online dating. *Computers in Human Behavior*, *33*, 113–118. doi:10.1016/j.chb.2014.01.022

Brand, R., Bonatsos, A., D'Orazio, R., & DeShong, H. (2012). What is beautiful is good, even online: Correlations between photo attractiveness and text attractiveness in men's online dating profiles. *Computers in Human Behavior*, *28*, 166–170. doi:10.1016/j.chb.2011.08.023

Bredow, C., Cate, R., & Huston, T. (2008). Have we met before?: A conceptual model of first romantic encounters. In S. Sprecher, A. Wenzel, & J. Harvey (Eds.), *Handbook of relationship initiation* (pp. 3–28). New York, NY: Psychology Press.

Brunswik, E. (1957). Scope and aspects of the cognitive problem. In J. Bruner, E. Brunswik, L. Festinger, F. Heider, K. Muenzinger, C. Osgood, & D. Rapaport (Eds.),

Contemporary approaches to cognition (pp. 5–31). Cambridge, MA: Harvard University Press.

Buunk, B., & Bosman, J. (1986). Attitude similarity and attraction in marital relationships. *The Journal of Social Psychology*, *126*, 133–134. doi:10.1080/00224545.1986.9713583

Chan, L. S. (2017). Who uses dating apps? Exploring the relationships among trust, sensation-seeking, smartphone use, and the intent to use dating apps based on the Integrative Model. *Computers in Human Behavior, 72*, 246–258. doi:10.1016/j.chb.2017.02.053

Chappetta, K., & Barth, J. (2016). How gender role stereotypes affect attraction in an online dating scenario. *Computers in Human Behavior*, *63*, 738–746. doi:10.1016/j.chb.2016.06.006

Condon, J., & Crano, W. (1988). Inferred evaluation and the relation between attitude similarity and interpersonal attraction. *Journal of Personality and Social Psychology*, *54*, 789–797. doi:10.1037/0022-3514.54.5.789

Cunningham, M., & Barbee, A. (2008). Prelude to a kiss: Nonverbal flirting, opening gambits, and other communication dynamics in the initiation of romantic relationships. In S. Sprecher, A. Wenzel, & J. Harvey (Eds.), *Handbook of relationship initiation* (pp. 97–120). New York, NY: Psychology Press.

Darbyshire, D., Kirk, C., Wall, H., & Kaye, L. (2016). Don't judge a (face)book by its cover: Exploring judgement accuracy of others' personality on Facebook. *Computers in Human Behavior*, *58*, 380–387. doi:10.1016/j.chb.2016.01.021

Eagly, A., Ashmore, R., Makhijani, M., & Longo, L. (1991). What is beautiful is good, but…: A meta-analytic review of research on the physical attractiveness stereotype. *Psychological Bulletin*, *110*, 109–128. doi:10.1037/0033-2909.110.1.109

Easterbrook, M., & Vignoles, V. (2013). What does it mean to belong? Interpersonal bonds and intragroup similarities as predictors of felt belonging in different types of groups. *European Journal of Social Psychology*, *43*, 455–462. doi:10.1002/ejsp.1972

Eastwick, P., Eagly, A., Finkel, E., & Johnson, S. (2011). Implicit and explicit preferences for physical attractiveness in a romantic partner: A double dissociation in predictive validity. *Journal of Personality and Social Psychology*, *101*, 993–1011. doi:10.1037/a0024061

Eastwick, P., & Finkel, E. (2008). Sex differences in mate preferences revisited: Do people know what they initially desire in a romantic partner? *Journal of Personality and Social Psychology*, *94*, 245–264. doi:10.1037/0022-3514.94.2.245

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends:" Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication*, *12*(4), 1143–1168. doi:10.1111/j.1083-6101.2007.00367.x

Finkel, E., & Eastwick, P. (2015). Interpersonal attraction: In search of a theoretical rosetta stone. In J. Simpson & J. Dovidio (Eds.), *APA Handbook of personality and social psychology, volume 3: Interpersonal relations* (pp. 179–210). Washington, DC: American Psychological Association.

Finkel, E., Eastwick, P., Karney, B., Reis, H., & Sprecher, S. (2012). Online dating a critical analysis from the perspective of psychological science. *Psychological Science in the Public Interest*, *13*(1), 3–66. doi:10.1177/1529100612436522

Fiore, A., & Donath, J. (2005). Homophily in online dating: When do you like someone like yourself? In *CHI '05 Extended Abstracts on Human Factors in Computing Systems* (pp. 1371–1374). ACM. doi:10.1145/1056808.1056919

Fletcher, G., Simpson, J., & Thomas, G. (2000). Ideals, perceptions, and evaluations in early relationship development. *Journal of Personality and Social Psychology*, *79*, 933–940. doi:10.1037/0022-3514.79.6.933

Graziano, W., & Bruce, J. (2008). Attraction and the initiation of relationships: A review of the empirical literature. In S. Sprecher, A. Wenzel, & J. Harvey (Eds.), *Handbook of relationship initiation* (pp. 269–295). New Your, NY: Psychology Press.

Guadagno, R., Okdie, B., & Kruse, S. (2012). Dating deception: Gender, online dating, and exaggerated self-presentation. *Computers in Human Behavior*, *28*, 642–647. doi:10.1016/j.chb.2011.11.010

Hayes, A. (2013). *Introduction to mediation, moderation, and conditional process analysis*. New York, NY: Guilford Press.

Horton, R. (2003). Similarity and attractiveness in social perception: Differentiating between biases for the self and the beautiful. *Self and Identity*, *2*, 137–152. doi:10.1080/15298860309033

Howard, R., & Perilloux, C. (2016). Is mating psychology most closely tied to biological sex or preferred partner's sex? *Personality and Individual Differences*, (Online First). doi:10.1016/j.paid.2016.05.009

Hoyle, R. (1993). Interpersonal attraction in the absence of explicit attitudinal information. *Social Cognition*, *11*, 309–320. doi:10.1521/soco.1993.11.3.309

Janz, P., Pepping, C., & Halford, W. (2015). Individual differences in dispositional mindfulness and initial romantic attraction: A speed dating experiment. *Personality and Individual Differences*, *82*, 14–19. doi:10.1016/j.paid.2015.02.025

Jöreskog, K., & Sörbom, D. (1984). *LISREL 6: User's guide*. Mooresville, IN: Scientific Software International.

Kashian, N., Jang, J., Shin, S. Y., Dai, Y., & Walther, J. B. (2017). Self-disclosure and liking in computer-mediated communication. *Computers in Human Behavior, 71*, 275–283. doi:10.1016/j.chb.2017.01.041

Klohnen, E., & Luo, S. (2003). Interpersonal attraction and personality: What is attractive - self similarity, ideal similarity, complementarity or attachment security? *Journal of Personality and Social Psychology*, *85*, 709–722. doi:10.1037/0022-3514.85.4.709

Klohnen, E., & Mendelsohn, G. (1998). Partner selection for personality characteristics: A couple-centered approach. *Personality and Social Psychology Bulletin*, *24*, 268–278. doi:10.1177/0146167298243004

Knobloch, L., & Miller, L. (2008). Uncertainty and relationship initiation. In S. Sprecher, A. Wenzel, & J. Harvey (Eds.), *Handbook of relationship initiation* (pp. 121–134). New York, NY: Psychology Press.

Lee, L., Loewenstein, G., Ariely, D., Hong, J., & Young, J. (2008). If I'm not hot, are you hot or not? Physical-attractiveness evaluations and dating preferences as a function of one's own attractiveness. *Psychological Science*, *19*, 669–677. doi:10.1111/j.1467-9280.2008.02141.x

Lemay, E., Clark, M., & Greenberg, A. (2010). What is beautiful is good because what is beautiful is desired: Physical attractiveness stereotyping as projection of interpersonal goals. *Personality and Social Psychology Bulletin*, *36*, 339–353. doi:10.1177/0146167209359700

Levinger, G., & Snoek, J. (1972). *Attraction in relationship: A new look at interpersonal attraction*. Morristown, NJ: General Learning Press.

Luo, S., & Zhang, G. (2009). What leads to romantic attraction: Similarity, reciprocity, security, or beauty? Evidence from a speed-dating study. *Journal of Personality*, *77*, 933–964. doi:10.1111/j.1467-6494.2009.00570.x

Miller, R. (1997). Inattentive and contented: Relationship commitment and attention to alternatives. *Journal of Personality and Social Psychology*, *73*, 758–766. doi:10.1037/0022-3514.73.4.758

Miyake, K., & Zuckerman, M. (1993). Beyond personality impressions: Effects of physical and vocal attractiveness on false consensus, social comparison, affiliation, and assumed and perceived similarity. *Journal of Personality*, *61*, 411–437. doi:10.1111/j.1467-6494.1993.tb00287.x

Montoya, R. M. (2008). I'm hot, so I'd say you're not: The influence of objective physical attractiveness on mate selection. *Personality and Social Psychology Bulletin*, *34*, 1315–1331. doi:10.1177/0146167208320387

Montoya, R. M. (2014). You're better than I if you're hotter than I: The role of objective physical attractiveness in the physical attractiveness stereotype. *International Review of Social Psychology*, *27*, 109–122.

Montoya, R. M., & Horton, R. (2004). On the importance of cognitive evaluation as a determinant of interpersonal attraction. *Journal of Personality and Social Psychology*, *86*, 696–712. doi:10.1037/0022-3514.86.5.696

Montoya, R. M., & Horton, R. (2013). A meta-analytic investigation of the processes underlying the similarity-attraction effect. *Journal of Social and Personal Relationships*, *30*, 64–94. doi:10.1177/0265407512452989

Montoya, R. M., Horton, R., & Kirchner, J. (2008). Is actual similarity necessary for attraction? A meta-analysis of actual and perceived similarity. *Journal of Social and Personal Relationships*, *25*, 889–922. doi:10.1177/0265407508096700

Montoya, R. M., & Insko, C. (2008). Toward a more complete understanding of the reciprocity of liking effect. *European Journal of Social Psychology*, *38*, 477–498. doi:10.1002/ejsp.431

Murphy, N., Hall, J., Mast, M., Ruben, M., Frauendorfer, D., Blanch-Hartigan, D., … Nguyen, L. (2015). Reliability and validity of nonverbal thin slices in social interactions. *Personality and Social Psychology Bulletin*, *41*, 199–213. doi:10.1177/0146167214559902

Mussweiler, T., & Damisch, L. (2008). Going back to Donald: How comparisons shape judgmental priming effects. *Journal of Personality and Social Psychology*, *95*, 1295–1315. doi:10.1037/a0013261

Muthén, L., & Muthén, B. (2015). *Mplus user's guide. Seventh edition.* Los Angeles, CA: Muthén & Muthén.

Olson, I., & Marshuetz, C. (2005). Facial attractiveness is appraised in a glance. *Emotion*, *5*, 498–502. doi:10.1037/1528-3542.5.4.498

Oosterhof, N., & Todorov, A. (2008). The functional basis of face evaluation. *Proceedings of the National Academy of Sciences*, *105*, 11087–11092. doi:10.1073/pnas.0805664105

Peplau, L. (2003). Human sexuality: How do men and women differ? *Current Directions in Psychological Science*, *12*, 37–40. doi:10.1111/1467-8721.01221

Peplau, L., & Fingerhut, A. (2007). The close relationships of lesbians and gay men. *Annual Review of Psychology*, *58*, 405–424. doi:10.1146/annurev.psych.58.110405.085701

Ramirez, A., Sumner, E. M., Fleuriet, C., & Cole, M. (2015). When online dating partners meet offline: The effect of modality switching on relational communication between online daters. *Journal of Computer-Mediated Communication*, *20*, 99–114. doi:10.1111/jcc4.12101

Ranzini, G., & Lutz, C. (2016). Love at first swipe? Explaining Tinder self-presentation and motives. *Mobile Media & Communication*, 2050157916664559. doi:10.1177/2050157916664559

Regan, P., Levin, L., Sprecher, S., Scott, F., & Cate, R. (2000). Partner preferences: What characteristics do men and women desire in their short-term sexual and long-term romantic partners? *Journal of Psychology & Human Sexuality*, *12*, 1–21. doi:10.1300/J056v12n03_01

Rodrigues, D., & Lopes, D. (2014). Development and validation of the Measure of Initial Attraction (MIA). *International Journal of Social Psychology*, *29*, 532–562. doi:10.1080/02134748.2014.981388

Rodrigues, D., & Lopes, D. (2015). Development and validation of the Measure of Initial Attraction - Interest Short Scale (MIA-I). *Psychology*, *28*, 261–269. doi:10.1590/1678-7153.201528206

Rodrigues, D., & Lopes, D. (2016). Sociosexuality, commitment, and sexual desire for an attractive person. *Archives of Sexual Behavior*, *Online First*. doi:10.1007/s10508-016-0814-3

Rodrigues, D., Lopes, D., & Pereira, M. (2016a). Sociosexuality, commitment, sexual infidelity and perceptions of infidelity: Data from the Second Love website. *Journal of Sex Research*, *Online First*. doi:10.1080/00224499.2016.1145182

Rodrigues, D., Lopes, D., & Pereira, M. (2016b). "We agree and now everything goes my way": Consensual sexual nonmonogamy, extradyadic sex, and relationship satisfaction. *Cyberpsychology, Behavior, and Social Networking*, *19*, 373-379. doi:10.1089/cyber.2016.0114

Rule, N., & Ambady, N. (2010). First impressions of the face: Predicting success. *Social and Personality Psychology Compass*, *4*, 506–516. doi:10.1111/j.1751-9004.2010.00282.x

Schaller, M., & Murray, D. (2008). Pathogens, personality, and culture: Disease prevalence predicts worldwide variability in sociosexuality, extraversion, and openness to

experience. *Journal of Personality and Social Psychology*, *95*, 212–221. doi:10.1037/0022-3514.95.1.212

Schmitt, D. (2005). Sociosexuality from Argentina to Zimbabwe: A 48-nation study of sex, culture, and strategies of human mating. *Behavioral and Brain Sciences*, *28*, 247–275. doi:10.1017/S0140525X05000051

Shin, D.-H., & Biocca, F. (2017). Health experience model of personal informatics: The case of a quantified self. *Computers in Human Behavior, 69*, 62–74. doi:10.1016/j.chb.2016.12.019

Shin, D. H., & Chung, K. M. (2017). The effects of input modality and story-based knowledge on users' game experience. *Computers in Human Behavior*, *68*, 180-189. doi: 10.1016/j.chb.2016.11.030

Shin, D.-H., Lee, S., & Hwang, Y. (2017). How do credibility and utility play in the user experience of health informatics services? *Computers in Human Behavior, 67*, 292–302. doi:10.1016/j.chb.2016.11.007

Sprecher, S. (1998). Insiders' perspectives on reasons for attraction to a close other. *Social Psychology Quarterly*, *61*, 287–300. doi:10.2307/2787031

Sprecher, S. (2013). Correlates of couples' perceived similarity at the initiation stage and currently. *Interpersona*, *7*, 180–195. doi:10.5964/ijpr.v7i2.126

Sprecher, S., & Felmlee, D. (2008). Insider perspectives on attraction. In S. Sprecher, A. Wenzel, & J. Harvey (Eds.), *Handbook of relationship initiation* (pp. 297–314). New York, NY: Psychology Press.

Sunnafrank, M., & Ramirez, A. (2004). At first sight: Persistent relational effects of get-acquainted conversations. *Journal of Social and Personal Relationships*, *21*, 361–379. doi:10.1177/0265407504042837

Tidwell, N., Eastwick, P., & Finkel, E. (2013). Perceived, not actual, similarity predicts initial attraction in a live romantic context: Evidence from the speed-dating paradigm. *Personal Relationships*, *20*, 199–215. doi:10.1111/j.1475-6811.2012.01405.x

Todorov, A. (2012). The social perception of faces. In S. Fiske & N. Macrae (Eds.), *The SAGE handbook of social cognition* (pp. 96–114). London, UK: SAGE Publications Ltd.

Todorov, A., Said, C., Engell, A., & Oosterhof, N. (2008). Understanding evaluation of faces on social dimensions. *Trends in Cognitive Sciences*, *12*, 455–460. doi:10.1016/j.tics.2008.10.001

Van Ouytsel, J., Van Gool, E., Walrave, M., Ponnet, K., & Peeters, E. (2016). Exploring the role of social networking sites within adolescent romantic relationships and dating experiences. *Computers in Human Behavior*, *55*, 76–86. doi:10.1016/j.chb.2015.08.042

Willis, J., & Todorov, A. (2006). First impressions: Making up your mind after a 100-ms exposure to a face. *Psychological Science*, *17*, 592–598. doi:10.1111/j.1467-9280.2006.01750.x

Yuan, K., & Bentler, P. (2000). Three likelihood-based methods for mean and covariance structure analysis with nonnormal missing data. *Sociological Methodology*, *30*, 165–200. doi:10.1111/0081-1750.00078